

What is claimed is:

1. An information-recording method for recording information on an information-recording medium by radiating a light beam power-modulated to be at a recording power level and an erasing power level, the information-recording method comprising:

overwriting a random pattern on the information-recording medium with light beams having a predetermined recording power and a variety of erasing powers;

reproducing the overwritten random pattern to determine a minimum value $Pb1$ and a maximum value $Pb2$ of the erasing power obtained when the pattern, in which a reproduction jitter or a reproduction error exceeds a predetermined threshold value, is erased;

determining an optimum erasing power Pb for performing the recording from the determined minimum value $Pb1$, the determined maximum value $Pb2$, and a relational expression represented by $Pb = \alpha \times Pb1 + (1 - \alpha) \times Pb2$; and

recording the information with the determined optimum erasing power Pb .

2. The information-recording method according to claim 1, further comprising determining an optimum recording power Pp by using the determined optimum erasing power Pb .

3. The information-recording method according to claim 1, wherein α differs within a range of $\alpha \leq 0.50$ depending on a recording speed when the information is recorded at different recording speeds.

4. The information-recording method according to claim 1, wherein a value of α is previously recorded on the information-recording medium, and the value of α is read from the information-recording medium when the information is recorded.

5. The information-recording method according to claim 2, wherein $P_r < P_{b1} < P_b$ and $P_b < P_{b2} < P_p$ are satisfied provided that a reproducing power is P_r .

6. An information-recording medium for recording and reproducing information thereon, the information-recording medium comprising:

an information-recording portion on which the information is recorded by being irradiated with a light beam having a recording power P_p and an erasing power P_b lower than the recording power P_p and on which the information is reproduced by being irradiated with a light beam having a reproducing power P_r lower than the erasing power P_b ; and

a control data portion, wherein:

information for determining an optimum erasing power P_b

from a minimum erasing power P_{b1} which satisfies $P_r < P_{b1} < P_b$ and a maximum erasing power P_{b2} which satisfies $P_b < P_{b2} < P_p$ is previously recorded on the control data portion.

7. The information-recording medium according to claim 6, wherein the information for determining the optimum erasing power P_b from P_{b1} and P_{b2} is recorded together with information which relates to a recording speed.

8. The information-recording medium according to claim 6, wherein the information for determining the optimum erasing power P_b from P_{b1} and P_{b2} is α which is represented by an expression of $P_b = \alpha \times P_{b1} + (1 - \alpha) \times P_{b2}$.

9. The information-recording medium according to claim 8, wherein a value of α satisfies $\alpha \leq 0.50$.

10. The information-recording medium according to claim 9, wherein the value of α satisfies $0.25 \leq \alpha \leq 0.50$.

11. The information-recording medium according to claim 6, wherein a linear velocity, which is used when the information-recording medium is moved relative to the light beam for recording the information, is not less than 9 m/sec.

12. An information-recording apparatus for recording

information on an information-recording medium by radiating a light beam power-modulated to be at a recording power level and an erasing power level, the information-recording apparatus comprising:

an optical head which radiates the light beam onto the information-recording medium;

a driver which drives the optical head so that the light beam, which is power-modulated to be at the recording power level and the erasing power level, is outputted from the optical head; and

a Pb-calculating control unit which reproduces a random pattern overwritten with light beams having a predetermined recording power and a variety of erasing powers to determine a minimum value $Pb1$ and a maximum value $Pb2$ of the erasing power obtained when the pattern with a reproduction jitter or a reproduction error exceeding a predetermined threshold value is erased, which reads a coefficient α which is used in an expression $Pb = \alpha \times Pb1 + (1 - \alpha) \times Pb2$ and has been previously recorded on the information-recording medium, and which determines an optimum erasing power Pb to be used when the recording is performed, from the determined minimum value $Pb1$, the determined maximum value $Pb2$, and the read coefficient α .